What is claimed is:

1. An apparatus for measuring contact pressure between two surfaces, comprising:

at least one deformable probe having a flow passage therein, the probe being adapted to be inserted between the two surfaces such that the flow passage is substantially blocked in a first operative position of the probe;

a fluid flow generator coupled to the probe;

a fluid flow meter coupled between the fluid flow generator and the probe; and

a manometer coupled between the fluid flow generator and the probe.

2. The apparatus of claim 1, wherein the probe is tubular.

3. The apparatus of claim 1, wherein the probe is formed of a rubber material.

4. The apparatus of claim 3, wherein the probe is formed of silicone rubber.

5. The apparatus of claim 1, wherein the fluid flow meter and the manometer are adapted to communicate with a data acquisition system.

6. The apparatus of claim 5, further comprising a data acquisition system in communication with the fluid flow meter and the manometer.

7. The apparatus of claim 6, wherein the data acquisition system is in communication with the fluid flow generator.

8. The apparatus of claim 1, wherein one of the two surfaces is a cushion of a breathable gas mask and another of the two surfaces is skin.

9. The apparatus of claim 1, wherein the two surfaces are, respectively, a contact surface of an item selected from a group consisting of shoes, harnesses, prosthetics, orthotics, breathable gas mask headgear, and backpacks, and a contact surface of a human body.

10. A method of measuring a contact pressure between two surfaces, comprising:

inserting at least one deformable probe having at least one flow passage therein between the two surfaces such that the flow passage is substantially blocked in a first operative position;

generating fluid pressure within the probe;

measuring the fluid pressure within the probe;

measuring fluid flow through the probe; and

recording the fluid pressure at which the fluid flow through the probe increases beyond a baseline flow value as the contact pressure.

11. The method of claim 10, wherein the baseline flow value is essentially zero.

12. The method of claim 11, wherein the baseline flow value is measured when the probe is in the first operative position between cushion and the face.

13. The method of claim 10, wherein the two surfaces are a contact surface of a breathable gas mask and a surface of the face, respectively.

14. The method of claim 10, wherein the two surfaces are a contact surface of an item selected from the group consisting of shoes, harnesses, prosthetics, orthotics, breathable gas mask headgear, and backpacks, and a contact surface of the human body.

15. A method of dynamically measuring and monitoring contact pressure between a cushion of a breathable gas mask and a portion of the face, comprising:

(a) inserting at least one deformable probe having at least one flow passage therein between the cushion of a breathable gas mask and the face such that the flow passage is substantially blocked in a first operative position;

(b) generating fluid pressure within the probe;

(c) measuring the fluid pressure within the probe;

(d) measuring fluid flow through the probe;

(e) recording the fluid pressure at which the fluid flow through the probe increases beyond a baseline flow value as the contact pressure;

(f) optionally, decreasing the fluid pressure within the probe; and

repeating (b) – (f) one or more times to create a contact pressure map.

16. A method of designing a breathable gas mask, comprising:

performing the method of claim 15;

creating a breathable gas mask modified in accordance with the contact pressure map; and

optionally, verifying the fit of the modified breathable gas mask.

17. The method of claim 16, wherein said verifying comprises performing the method of claim 15 using the modified breathable gas mask.

18. A method of creating an anthropometric model of a face, comprising:

performing the method of claim 15; and

creating the anthropometric model of the face based on the contact pressure map.

19. The method of claim 18, wherein the anthropometric model is a computational model.

20. The method of claim 18, wherein the anthropometric model is a physical model.

21. The method of claim 18, wherein the anthropometric model is dimensioned to mean anthropometric values generated from contact pressure maps of several experimental subjects.